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ABSTRACT

The clustering technique of instruction is described. Clustering is defined as "an active group exchange and/or interchange of three or more people that center their attention around a particular objective." There are multiple and expansive cluster shapes that can be used by a class for receiving and offering ideas and information. The most important role and function of the instructor in the cluster concept is one of collation. This involves bringing together what has been interchanged, and tying in the cluster activities and discussions. The procedure is not synergetic unless there is an attempt at synthesis. Examples of material around which clustering can operate effectively, which show that the synergism involved permits more learning to take place, are: questions and question-sheets, problems and topics, papers and handouts, and evaluation and grading. Nineteen guidelines for successful clustering are provided. It is concluded that when clustering is working, the student feels freer, is autonomous, yet cooperatively associated, and more constantly involved and active. Appendixes provide cluster diagrams. (Appendixes 4, 5, 6, and 7 were deleted due to marginal reproducibility.) (DB)

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CLUSTERING:

A SYNERGETIC APPROACH TO LEARNING

by

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There is a contract between
speakers and hearers that what is
said affirms something about reality...

- Paul Goodman

UNIVERSITY OF CALIF.
LOS ANGELES

NOV 2 1973

CLEARINGHOUSE FOR
JUNIOR COLLEGE
INFORMATION

INTRODUCTION

This paper stems from a teaching method I employed during the Spring semester, 1973, parts of which I have been utilizing for a number of years. That method is an attempt to define and implement a more effective learning situation in English classes, as well as to more effectively deal with the problem of heterogeneous grouping that an "open door" policy at our junior college effectuates.

Learning on all levels seems naturally to consist of an interchange between resources and needs. In many of our classes the prime resource is the instructor, and we assume because the students come to class to learn, that they are the only ones that have the need. This is the traditional authoritarian format; the learning that goes on under its aegis takes on the form of receivership, usually passive with respect to the student, with the teacher taking on the role of authority, who, so to speak, "stands over" the students in front of the class. A glance at the kind of seating arrangements used for most of our humanities classes reveals this format.

In many of our science courses, this format and "stance" is necessary, for the instructor wants the student to know certain facts, and deems it crucial that the student account finally for what he knows. Although there may be discussion, it is secondary to the instructor's task to make sure each individual student knows the facts, accurately, without guess-work. In a class dealing with brain physiology, the distant image of the brain surgeon and his patient leaves no room for fumbling or hesitation.

We expect the surgeon to know exactly what he is doing, to be precise, have perfect recall, and so on. The patient desires to have the utmost confidence in his physician. In subject matter that tries to admit to the least amount of error, where calculations are made as exactly as possible, and conclusions are drawn as correctly as they can be, the authoritarian format continues to be a viable one.

But in classes dealing with the broader area of the humanities, where ideas are, in the main, the predominant mode of entry into the subject, it is not a matter of correctness or of being right about answers to questions, so much as it is one of encouraging discovery and approach to the subject, and stimulating cognitive processes that connect with inquiry and exploration. The criterion is here not so much being right in the particular, but seeing in order to illuminate the whole.

One of the problems, then, that continues to persist at the junior college level - at least from my own pedagogical viewpoint - has to do with how learning may be effected without having to adopt the authoritarian stance, which in the case of many classes in the humanities is not only damaging to the concept of interchange, but deleterious to the nurturing and development of interest and individual growth. Albert Einstein is quoted as saying:

> One had to cram all this stuff into one's mind, whether one liked it or not. This coercion had such a deterring effect that after I had passed the final examination, I found the consideration of any scientific problems distasteful to me for an entire year...It is in fact nothing short of a miracle that the modern methods of instruction

> have not yet entirely strangled the holy curiosity of inquiry; for this delicate little plant, aside from stimulation, stands mainly in need of freedom; without this it goes to wrack and ruin without fail. It is a very grave mistake to think that the enjoyment of seeing and searching can be promoted by means of coercion and a sense of duty.[1]

Here, Einstein, to my mind, touches education's sore point. The student's innate sense of curiosity is strangled, or it is turned off at some point in the authoritarian structures he has so long been exposed to. Education really is a misnomer. He is "being told"; and by the time he comes to the junior college, he does not expect to be engaged in any other function but the passive reception of what he is taught, of what is required to "get through." If the student stays in school it is probably for reasons ulterior to the learning experience, not because of it. The exceptions are so outstanding they are anomalies. Anyone who "insists upon learning" - which was Ezra Pound's definition of a student - is today some sort of "freak."

The other problem of heterogeneous grouping is one not only peculiar to the junior college, but is an ongoing condition of higher and continuing education. The instructor has to learn how to utilize a wide range and spectrum of ages and abilities. One of the problems in interpretation of literature

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[1] This quote was given to me as appearing in a publication called, Examining in Harvard College, but I have been unable to actually locate the primary source.

has to do with the existential fact of the intellectual and emotional age, maturity and background of the student. If ages and abilities are mixed and divergent, this can be problematical, especially if the instructor feels it is incumbent upon him to somehow work with all the members of the class. Approaching the most common denominator and, so to speak, averaging in the exceptions is no solution. Bright students should not be held back; dull ones should not be left behind; students in their forties or fifties should not have to hang back or feel intimidated about coming forward, and so on. At Santa Barbara City College, the open door policy of admission insures that classroom heterogeneity will persist, and yet many faculty find the condition disadvantageous, if not disagreeable; and although they learn to live with it, they have not yet turned it to greater advantage.

Doing more with the given heterogeneous situation, as well as doing more with less authoritarian fixation, imbalance and coercion is what the following innovative project and account attempts to encourage. By introducing the concept of <u>synergy</u> and <u>clustering</u> into the learning situation, it attempts to actualize the concept of learning as an interchange between <u>various</u> resources and needs. I wish only to demonstrate the viability of a technique which any instructor may develop within his own discipline and according to his own predilections.

I KEY CONCEPTS

Synergism

Synergy, according to Webster, generally means "combined or cooperative action or force," but his sense of synergism bears a more particular and relevant meaning for our purposes here. It is: "the simultaneous action of separate agencies which, together, have greater total effect than the sum of their individual effects." The lectures and writings of R. Buckminster Fuller have made this word more popular, and the concept behind it more operative. He defines it as the "behavior of whole systems unpredicted by the separately observed behaviors of any of the system's separate parts..."[2] He gives the following examples:

> Synergy is the essence of chemistry. The tensile strength of chrome nickel steel, which is approximately 350,000 pounds per square inch, is 100,000 p.s.i. greater than the sum of the tensile strengths of each of all its alloyed together, component, metallic elements. Here is a "chain" that is 50 per cent stronger than the sum of the strengths of all its links....[3]

> The solar system is synergetic - unpredicted by its separate parts. But the interplay of Sun as supply ship of Earth and the Moon's gravitationally produced tidal pulsations on Earth all interact to produce the biosphere's chemical conditions which permit but do not cause the regeneration of life on Spaceship Earth. This is all synergetic. There is nothing about the gases given off respiratorily by Earth's green vegetation that predicts that those gases will be essential to the life support of all mammals aboard Spaceship Earth, and nothing about the mammals that predicts that the gases which they give off respiratorily are essential to the support of the vegetation aboard our Spaceship Earth. Universe is synergetic. Life is synergetic.[4]

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[2] R. Buckminster Fuller, Operating Manual for Spaceship Earth (New York: Simon and Schuster, 1969), p. 71.

[3] Ibid. [4] Ibid., pp. 72-73.

To bring the concept into the classroom one has only to remember the notion of combined and simultaneous action. The students at the beginning of each semester come in as separate entities with separate strengths and weaknesses. If these attributes can interact and combine, although what takes place is unpredictable, an amalgamation provides more learning potentialities. And if the attitudes are positive, these potentialities become kinetic, so to speak, and more learning actually takes place.

For example, papers are assigned on a specific topic or problem. Usually the students bring the papers to class when they are completed, hand them in to the instructor, who reads them, marks and comments on them, and after evaluating and grading them hands them back to each student. This is not all there is to it, but it is, in the main, the common procedure and practice. The students are treated here as sovereign entities, their papers have little direct bearing on the learning process as it goes on in the classroom; their work is treated separately, and their prime relationship is, as far as the paper is concerned, with the instructor.

Consider now a synergetic approach to the same paper assignment. The students on the day the paper is due bring it to class. They group themselves in three's, intra-and inter-exchanging their papers (see diagrams, Appendix 2 C.&D.) and reading for a prescribed period, during which time they may be questioning each other and discussing. Then, towards the end

of the period the instructor asks them to take up their own papers writing on the overleaf any new or additional ideas they might have picked up in the process of the exchanges. Then the students hand their papers in.

Not only is another whole range of learning dynamics brought into play here - the student learning more not only about the paper's topic but about his peers' approaches - but he also becomes more himself (and the ambiguity here is intended). The procedure allows the student to become operative, functioning in more than a separatist manner, cooperatively sharing his own strength or weakness, as the case may be, and in one way or another experiencing more total learning effect.

Another example of a synergetic procedure that I have used for some years - one which extends outside of the classroom although it is initiated in it - is a resource-need exchange. The analogy of sharing strengths and weaknesses is exactly the same here. In the usual class situation the students get to know each other more or less by the end of the semester, through contact in and outside of class. But the instructor does not directly facilitate this. He presents the subject matter, they relate to him, and in the usual way in which the seats are arranged the students are not able to even see much of their peers - save perhaps the back of their heads. But even if the arrangement is altered to circle discussion, the students only experience how each of their peers relate to the subject under discussion. They know nothing about each other, and are generally reticent and non-committal. But the classroom consists of

a group of people that are associated for a given period of time in a similar undertaking. Is it irrelevant to find out what the group's resources and needs are? Irregardless of the subject matter, I don't think so, especially if you consider the resource-need exchange as an initial approach to a group association.

The instructor tells the class at the first or second meeting to bring two items to class: a resource and a need. The resource is defined as that which the person knows so well that he can confidently teach it to others. The need is defined as his or her most urgent and present requirement. The instructor indicates that the resource and the need do not have to be limited to the school context and that the student should select out of the probable variety of his resources that which he knows the very best, as well as the need which is most important or essential to him right now. When the students come to the next class session - presumably having thought about this a little, and being therefore prepared - each of them, in a circular arrangement, orally impart their name, resource and need; then,when they are done,write these down in a synoptic form on a ditto-master passed to them. These sheets are subsequently run off and given to the students at the next class meeting, the instructor serving as the collator, pointing out various "matchings" or translating the handwriting and perhaps the resources-needs of his other sections. For it is of course possible to initiate such an exchange for all the

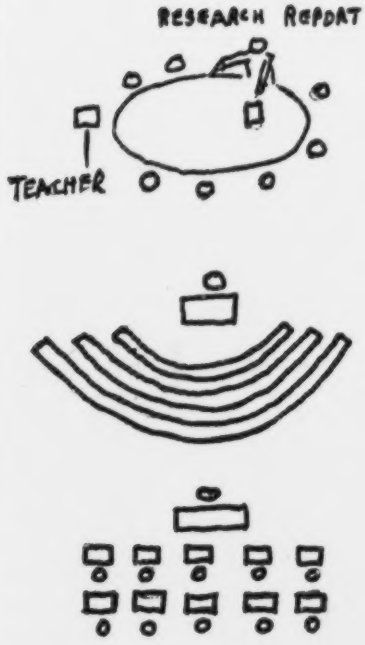
classes the instructor teaches (see Appendix 4 - Resource&Need sheets), allowing students from one class to seek exchanges with another. This naturally provides more possibilities of matching up, and generally more interaction. Sometimes resources can be brought to class and demonstrated or shown. Whether or not this kind of enactment takes place depends on the class situation and purpose, but obviously the process does not have to end with the written tabulation. It is satisfying to see two students, who otherwise perhaps would never have made contact, make that contact and share their respective knowledge and needs. And this invariably takes place, and not with just two students. The classroom can initiate what can be profitably shared outside of it, and the students by this procedure, especially at the very outset of the semester, get to know each other. The class as a whole gets to know what everyone "is good for," as well as the range of strengths and weaknesses it has among all its members.

Again, the range of dynamics is greatly increased, the atmosphere becomes more congenial, the students more familiar with each other; individual aptitudes as well as ineptitudes are acknowledged, similarities and differences recognized. The point here, aside from the synergetic one, is that the student gets to know by this procedure one of the important lessons of community and communication, which is: that the strength of both of them depends upon the exchange and interchange of what is and is not known. This is also the crux of the learning process.

Clustering

Webster gives "cluster" as "a number of things of the same sort gathered or growing together"; or "a number of persons grouped together." The cluster indicates a more or less circular concentration of members around a particular point or locus, as in a cluster of bees; and it implies closeness and collaboration. The general terms, "group" and "grouping" do not carry these connotations.

In social activities we can see an intimate relation between form and function in the different seating arrangements that we find, for instance, in the areas of psychotherapy, religious services, eating, legislative bodies, the theater, and at the university. Paul Goodman writes about the latter area:



(1) The University is a community of scholars - masters and students. Perhaps we could say that its seating is embodied most typically in the Seminar, a round or oval table. (Being fancy, we might say that the oval shape has the advantage that its roundness allows the members to be face-to-face for collaborative thought and discussion, whereas the length allows for a head of the table.) Obviously this is not an arrangement for indoctrination or briefing, but for the presentation of fledgling research, reading papers and hearing criticism from one's peers, under expert guidance.

(2) At one extreme, the Seminar table opens out into the plan for lecture or demonstration. This plan suits the situation when there is in fact a body of authoritative knowledge to be conveyed. The doctor teaches or physically demonstrates a text or experiment. Subsequent questions are directed to him, in the center. But it is best if there is also a strong sense of one's fellows, and therefore the shape of an amphitheater. This differs from the grade-school recitation, where the pupils sit in rank and the teacher calls on each individual to give an accounting of himself.

(3) At the other extreme, the Seminar table scatters into an informal group, some on chairs, some on the floor - perhaps with tea, a fire going, etc. This suits the situation where the subject is imaginative or speculative. The presence of the group encourages, suggests, criticizes; but each can withdraw into private musing, exempt from the circle, till he thinks of something.

These plans are all relevant to the University - modified, of course, by the requirements of blackboards, drawing boards, laboratory equipment, etc. What I want to emphasize is that the choice of one or the other depends on the nature of the knowledge involved, and the mode of seeking it.[5]

Goodman gives the basic arrangements for the University, but we now can add the cluster, which is a viable arrangement for undergraduate classes that contain 25-50 students (see Appendices 1, 2 and 3). I define clustering as an active group exchange and/or interchange of three or more people that center their attention around a particular objective. In a class of 33 students there might be as many as eleven clusters, or as little as four, depending upon the kind of objective. It is more expedient and economical, for instance, to read papers in clusters of three. No one is left sitting, and discussion after reading is manageable and more efficient. However, in more general discussions, or when the students are feeding in responses to the same problem or question, the size of the cluster can increase. But more than eight people is not practical for maximum participation of all the members. It would be preferable to form another cluster to avoid unwieldiness.

What distinguishes a clustering arrangement from general

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[5] Paul Goodman, Utopian Essays and Practical Proposals (New York: Vintage Books, 1964), pp. 172-173.

"rap" sessions and open discussions is that clusters are formed for specific and particular reasons, objectives, tasks. Clusters attempt to solve a problem or open it up for closer inspection, respond to a question or series of questions, come up with a possible solution, exchange information, interchange prepared papers, establish consensus, discuss textual problems and topics previously thought about, evaluate and grade class papers or quizzes, and so on. The possibilities, although extremely numerous, are more workable in this arrangement when there is a definite, particular and specific objective in mind. (The next section, "Operations," gives examples of materials that students have successfully worked on in clusters.)

If one looks at the cluster diagrams in Appendices 1, 2 and 3, it becomes clear that the possible variety of cluster shapes used by a class for receiving and offering ideas and information are multiple and variously expansive. Disadvantages that are discovered are transformable because of the open and flexible nature of the structure. Individual problems and difficulties are more detectable because they are brought out more into the open, and being more "visible" they are therefore more rectifiable.

The instructor functions in a variety of ways, depending on the subject at hand, his own objectives, and what will serve the best interests of the learning situation. He may lecture one day, use clusters the next, show a film the following day, and so on. His use of clustering can be flexible; he can build

or break up various kinds of cluster arrangements easily and quickly, both for inside as well as outdoor classes.

When clusters are operating, the instructor has a number of options. He may move in and about the clusters (see Appendix 1 B.), or he may sit in with the students participating in the exchanges (Appendix 1 D.). He may audit a particular cluster, or even several at one time (Appendix 3 C.). He may choose to talk to a few students who have specific problems or questions, using the time to serve as another resource or as an advisor. The point is that the instructor is free to play multiple roles, depending upon what is needed. He serves primarily as facilitator, as far as the operation of clustering is concerned.

But his most important role and function after the cluster concept is operating is one of collation. This involves gathering and bringing together what has been interchanged, and tying in the cluster activities and discussions. He may do this in a general way towards the end of the class session (see Appendix 1 C.), calling on volunteers to say what they have discovered, or he may use student spokesmen who summarize or in some way give an account of what their respective clusters have discussed (Appendix 2 A.). After the instructor has seen how the clustering has gone on of a particular day, he may want to have a post-cluster discussion or make a point he wishes all to consider and respond to (see Appendix 3 D.), but in any case the clustering technique will not work well if the instructor

does not attend to his function of collator.

It may not be possible to collate responses in the same class session where clustering has gone on, but the instructor should start the next class this way. The procedure is not synergetic unless there is an attempt at synthesis, or at any rate ascertaining in some way the results of the work carried on in all the clusters. The students thereby find out what has gone on outside of their own groups, and this becomes germane and helpful to their own activity. It is therefore important that the instructor provide this opportunity by coordinating the time and bringing together the work that has been going on.

Sometimes the instructor needs more time himself to gather together what has transpired during class sessions. The results of such deliberation can be imparted orally at the next class meeting, or they can be written out and duplicated. Written collations are very useful (see examples in Appendix 4), since they recapitulate, tie ideas together, can be further used and referred to by the students to extend or clarify what went on in class, and can occasionally be employed as an additional cluster subject or project.

II OPERATIONS

I would like now to give some examples of material around which clustering can operate effectively and productively, showing that the synergism involved permits more learning to take place.

Questions and question-sheets

Questions are naturally the hub of dialectic and the entire learning process, and each instructor has his own way of bringing them into play. In literature and the humanities in general they are main catalysts for bringing the student in touch with the subject matter, and for stimulating further inquiry.

Cluster arrangements make it possible for several people to work together on questions, and in the process the various approaches, types of reasoning and thinking of the students are exchanged and revealed. This does not usually happen in the traditional arrangement, where the instructor asks the class a question and calls on one student at a time for his response. If the dialectic procedure continues it is because the instructor asks another question, whether of the class or the student who has been speaking. Most of the other students are not involved in the dialogue occurring between the student and the instructor. And too, the burden of motivation, of getting more students to respond, of getting them involved, falls on the instructor. But when clusters deal with specific questions more students become operative and have more opportunity to involve themselves.

The question-sheets in Appendix 5 take up texts, and are not in themselves unusual. But all of them include at least one

item which asks for further questions to be formulated. Student questions can obviously become rich material for a clustering session. If the instructor wishes to go through the questions before taking any of them up, he has only to have the students hand in their formulations, from which he may choose to use what he considers the more pertinent and interesting ones. He has many options here, and clusters can take up the questions that interest them, grouping themselves according to preferences or other criteria (see Appendix 3 A.&B.).

Another way of handling the question-sheets, as far as assignments for clustering are concerned, is to tell the students that they are each to take up, say, only four questions out of sixteen. The idea here is to make each student responsible for the areas of his interest and choice, without overloading him with too much outside work. Then the students come to class, and clusters can then be arranged in different ways. For instance, there can be clusters arbitrarily grouped, or ones formed around the same questions. The instructor can easily ascertain what questions were taken up, how many were not, which were the more difficult ones, and so on. He can "fill in" perhaps what was avoided, have open discussion on why a majority selected from the question-sheet on Camus' The Stranger, for instance, questions 6, 7, and 8, and why questions 4 and 5 were largely avoided. There are many possibilities. But through the cluster format and the collations the instructor makes with regard to post-cluster responses,

it is possible for every student to be familiar with all the areas that the sixteen questions bring into play, and without having to work all of them out. There is simply shared input. In cluster arrangement, the group output effect is, or at least should be, greater than the individual input. This is the principle of synergism. In terms of learning it may mean more return for the amount of time and energy invested. I have run no statistical surveys here. My own observation, the students' written evaluations (see Appendix 7) and another faculty member's opinion are what I am going on.

Problems and topics

Clustering handles these areas in much the same way as it handles questions, except that the instructor must anticipate the need for more time in taking up what can become more interpretively difficult. Certain problems and topics are perennial, and the instructor must be aware that clusters may break down into mere "rapping" sessions that seem to be getting nowhere. He, therefore, must have a sense of when to step in and guide a particular cluster, or intercede in order to address the whole class, depending upon what he has audited with respect to the individual clusters. He must try to encourage the clusters by showing them that it is not always necessary or important to solve the problems of the subject matter as much as it is to see the nature of the difficulty, to see where the heart of the difficulty or the center of the problem resides; and he must try to validate as much as he can

the approaches that do attempt to get to the center of an issue. Clusters can argue back and forth fruitlessly, for instance, on "Is King Lear more of a tragedy than Waiting for Godot?" (See Appendix 5: King Lear topics) There is obviously no "right" answer here. All the student can be expected to do is to reasonably support his position as strongly as he can. The same fruitless debate can persist in a question like, "What are the essential themes of King Lear?" There are many themes. Some are as equally comprehensive as others. The student, in clustering, should be encouraged to follow the line of discussion that attempts to reveal the most about the subject, rather than agreeing or disagreeing with the positions of other members, or attempting to find the right answer or solution.

Occasionally, a cluster discussion will raise an issue or problem or bring up a topic that is interesting enough for the entire class to be turned on to it. But often there is not enough time, especially in fifty minute classes. The instructor can make a particular view available, or he can himself respond to the view through written memos distributed to the class (see Appendix 6). The point here is that as a rule problems taken up in class or topics that are raised should not be left hanging, and interesting tangents to topics that students bring up should be utilized wherever possible, not wasted. The instructor should use every means he can devise to minimize frustration and encourage the building of ideas in the cluster arrangement. This has to do with his prime function as collator. And success

with this format as a learning procedure depends strongly on his ingenuity in bringing and keeping things together.

Papers and handouts

Two of the most valuable materials that clusters can give their attention to, besides questions and topics, are materials that the instructor distributes and student papers. The handout material may in fact be copies of a student paper which the instructor wishes everyone to read and discuss, or written material which the instructor has collected, like Camus' Nobel prize acceptance speech; or it may be the instructor's own views and interpretation of texts (see Appendix 6).

Student papers, as indicated earlier, can be written with view to being read and variously interchanged in class. Cluster papers are effectively exchanged if they are short, say no more than two or three typewritten pages. Written assignments should be given with this in mind. Longer papers take longer to read, attention lags, and there is not as much opportunity to interchange. Also, if evaluation and grading are taken up (see next section) it is desirable to have every paper circulate as much as possible.

The students appreciate reading as well as hearing the views of their peers. Formalizing this as a procedure in class, rather than having it occur fortuitously among friends outside of class makes their own views part of the subject matter. This is the way students develop their own worth, and not just merely a sense of it. We have already found that students teach other

students sometimes a lot more effectively than the teacher. In any case, they relate better to the learning situation if more of their own peer group is involved and operative.

The idea of having the students write additional and new ideas down on the back of their own papers after a reading session is, I believe, a good one if the instructor allows enough time. The students subconsciously begin to look for different approaches or ideas in the subsequent papers, because they know they may be expected to note them down. The instructor can vary his devices and approach. He may ask the students to each write down the most salient point they felt was being made among the papers they read. Or he may ask them to write down any change or modification of their own views they would make on the basis of their readings. Again, there are many possibilities.

Another more innovative idea here is to have the students cluster around the final exams they turn in. Usually, the final exam is strictly an individual matter. But some instructors allow take-home exams, and this permits the class meeting at exam time to be utilized as a reading interchange - and amongst all the sections, in some cases - thus allowing for what could be an important last learning experience. It also makes for a good feeling of togetherness at the very end, during exam week, which is usually fraught with nerves and tension.

Evaluation and grading

After the students read and interchange their papers, the instructor will usually collect them, and if he is teaching English, he will go through the process of reading, marking and correcting them, usually commenting on the papers and then assigning a grade. A synergetic approach would have the students participate in this process in a way which would enable them to learn something about the process of evaluation, including criteria and grading.

For my own purposes, I used one set of papers to do this. After collecting and reading them, I gave the 8 o'clock section the 9 o'clock papers, which were marked and corrected, but not commented on or graded. I told the class to get into clusters of three, read, and grade the papers. I had not prepared them for this through previous discussion because I wished to see how they approached it "cold." I did, however, place a grade scale on the board (see below), which I told them they could refer to if they wanted. In the ensuing interchange, as many as seven grades were given to almost all the papers. After collecting them the class began an open discussion on grading, whether it was necessary, sufficient, and what criteria had been used. Responses were noted, and the class left having been asked to further consider the idea of evaluation with reference to works of fiction. The 9 o'clock class came in, and the same procedure was repeated. They were given the 8 o'clock papers to work on.

Each class was informed that an average of the grades,

including the instructor's, would be given. Surprisingly, the cluster-grade was very close to the grade given by the instructor, and this was true for both sections. This is not explained by the following scale, placed on the board, which some of the students referred to:

A	Excellent
A-	Very good indeed
B+	Very good
B	Good
B-	Satisfactory
C+	Adequate
C	Fair
C-	Somewhat poor
D	Poor
D-	Very poor indeed
F	Positively bad

What was productive here was having the students account for their use of this scale or other criteria they might have employed. Excellent? What was excellent? Poor? What specifically was poor?

The idea of having students evaluate and grade their peer's work proved possible; they enjoyed it more than they expected, and became interested in the way the grading tied in to the idea of evaluating a work of fiction (see Appendix 6: Evaluation), part of the material and objectives of the course. They also obtained some insight to the problems the instructor has, and were more circumspect in the evaluations they made of the class and the instructor at mid-semester.

In the student evaluations (see Appendix 7), the strong majority were enthusiastic about clustering as a method, despite their criticism of some of its features. Almost every student

in two sections wrote something about it on the form that was distributed (see Appendix 7). In addition, Dr. Fred Schuler, who came to class over the entire semester, contributed the following addendum:

> As an active participator/observer of Mr. Lane's Spring 1973 English 2 class, I have a few additional comments on the clustering method of instruction. I observe that Mr. Lane is a strong proponent of the "discover" and "exploration" method of instruction, rather than the pure lecturing and authoritative delivery of facts and opinions, although he also has strong opinions. This implies, for example, that the students will have to learn, by themselves, to work together in the cluster, rather than be told how to select leaders, collators, etc. The students must decide for themselves that they must be prepared when they join a cluster.
>
> There are several keys to help the students avoid conflict, chaos, and boredom, when:
>
> 1) clusters are sometimes arranged to handle separate and specific tasks which <u>interest</u> the members
> 2) the clustering situation is <u>well-structured</u> with respect to one or more <u>tasks</u>
> 3) the instructor plays a <u>very dynamic</u> and <u>supportive role</u>, by:
>
> (a) circulating and listening and asking key questions
> (b) giving resource information
>
> 4) <u>collations</u> and summaries are given the <u>same day</u> or <u>by the following meeting</u>
>
> Clustering, as carried out in the above manner, requires the instructor to be alert and participate actively.
>
> My observations were consistent with many of the comments of students on evaluation of clustering. But I believe there are other subtle things going on, in terms of group dynamics. As an example, the "collator," who was chosen at an early stage of the cluster discussion, uniformly made an excellent presentation, <u>better</u> than the information and opinions given to him. That is to say, the "collator" took a very active and responsible role of editing, adding, revising, and organizing the discussion in order to make a consensus report to the class and to Mr. Lane.
>
> With the addition of clustering to more conventional

classroom presentation, the class was presented with:

1) a highly structured course (even though it may not have appeared so on the surface)
2) other students as resources
3) the needs of students
4) the instructor as a resource
5) clustering as a learning mechanism
6) examples of the work of other students
7) the task of self-evaluation
8) the task of the evaluation of the work of others
9) the process of synergism

III GUIDELINES FOR SUCCESSFUL CLUSTERING

The guidelines listed below were gathered from the written and verbal comments of the students, from Dr. Fred Schuler, who attended one of the classes regularly, and from my own observations of what did and did not work. Depending on the particular discipline and the instructor involved they would undoubtedly be modified to suit the purposes of that discipline and instructor.

1) Come to class prepared.

2) Be "filled" with the topic, question, or subject proposed for your cluster.

3) Serve as a contributing member, balancing input and output by neither remaining silent nor "hogging" the whole show.

4) Keep the cluster's perspective; don't go off on too many tangents.

5) Permit yourself to work with the members of one cluster long enough to relate to and become familiar with them.

6) When the opportunity presents itself move into other cluster combinations in order to interact with new people and learn new approaches.

7) Listen to what everyone is saying, as if you were going to act as cluster-spokesman summarizing or giving the members' positions and views at the end.

8) When it helps, take notes of the salient features of the discussion, and the points that are being made.

9) Do not be embarrassed or put off by "lags" in cluster discussion; they may indicate the need for private musing that is attempting to "come up with something."

10) If a non-working silence seems to predominate, make it fertile by pertinent questioning.

11) To help the class gather and tie in what the various clusters have come up with, give attention, and contribute if possible, to the collation, usually carried on at the beginning or end of a class session by the instructor or a cluster-spokesman.

12) A cluster-spokesman serves as a collator.

13) More than eight in a cluster is unwieldy for maximum and efficient input. Try for less numbers, or arrange a new cluster.

14) Short papers are best exchanged in clusters of three.

15) Clustering works best centered around specific and particular topics, questions and problems. This is what distinguishes it from mere "rapping."

16) Remember to relate the cluster session to the overall purpose of the particular topic and class inquiry.

17) To get to the heart of the matter, exchange the essentials, as if you only had fifteen minutes to work together.

18) Clustering has a purpose: synergism, which is "the simultaneous action of separate agencies, which, together, have greater total effect than the sum of their individual effects." (Webster)

19) Remember the four rules that Rick Strauss gives in his book, How to Win Games and Influence Destiny Book II (L.A. Gryphon House, 1969), pp. 16-17.

The Rule of Balance:

"Energy out must balance energy in."

The more you put out the more you get back.

The Rule of Quality:

"The quality of the out-put determines the quality of the return."

Whatever (way) you put out...that's how you get it back.

The Rule of Cumulative Effect:

> "All energy returns to the sender, multiplied by 10."

All actions set off chains of reactions of the same quality.

The Rule of Ultimate Purpose:

> "The ultimate purpose of every action is to get us closer to a reliable source."

(Only such a source delivers enough energy, in the long run, to provide for...and make a thing of beauty out of an otherwise deadly game of survival.)

IV CONCLUSION

When clustering is working, the student feels freer; he is autonomous, yet cooperatively associated, and more constantly involved and active. He is not passively sitting back, but rather engaged and operative. He cooperatively activates and extends his own and his peers' learning within the synergetic atmosphere.

Clustering as a learning procedure is non-authoritarian yet not without authorities. (Authority, like meaning, gradually emerges and is gained by consistent work and perseverance. It does not spring full-blown.) Each person in a cluster is responsible for mastering and communicating his own "share" of each inquiry. Each member can become, so to speak, an instructor. Each member gets to know the other members of his cluster and class more thoroughly and in a shorter length of time through actual contact, circulation, and interchange. All members experience cooperatively shared and exchanged ideas and identities, which makes the learning situation more entire, more productive, more flexible and enjoyable, more meaningful.

Clustering is a method in keeping with one of the present educational necessities of doing more with less, yet it improves and extends instructional technique and learning capability in the classroom. Perhaps not all faculty can employ all of the procedures or the arrangements suggested in this paper, but it is hoped that all of the faculty can use some of what has been

offered here within their own disciplines and according to their own predilections. It is hoped also that by so doing this they can modify some of the unrewarding and unshared labors of the classroom by enlivening its situation, and by replacing, in part, a separatist and authoritarian teaching role and environment with a more cooperative, synergetic and egalitarian one.

*

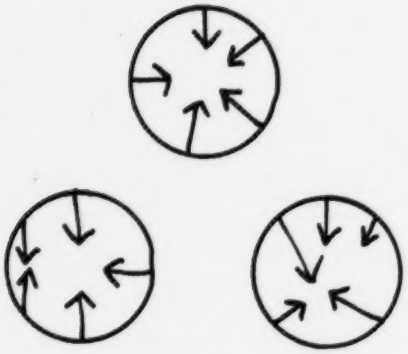
V APPENDICES

Appendices 1, 2, 3

Cluster Diagrams

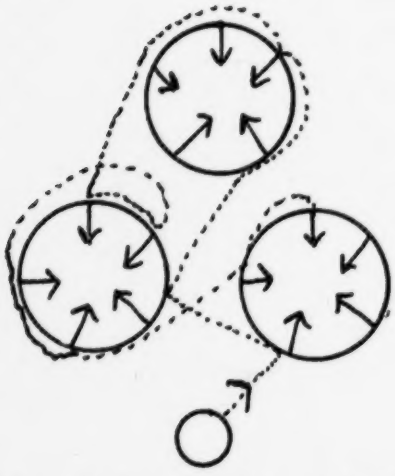
APPENDIX 1

A.



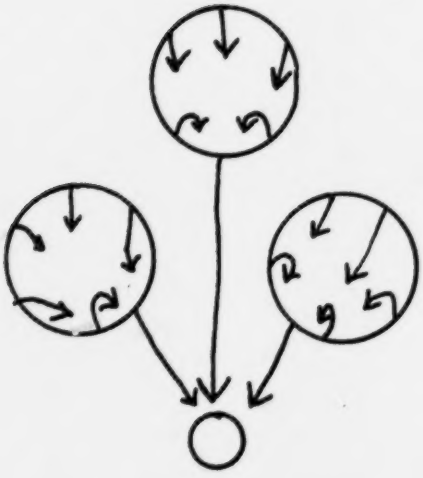
Cluster exchange

B.



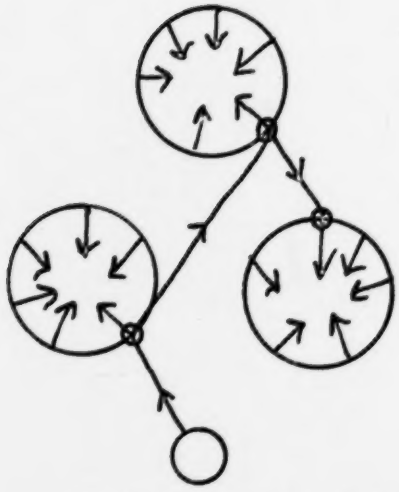
Instructor contact and circulation

C.



Instructor collating general responses

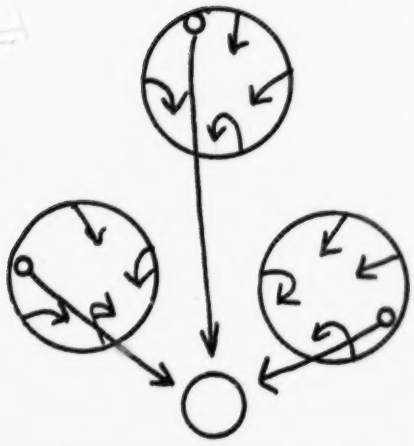
D.



Instructor sitting in

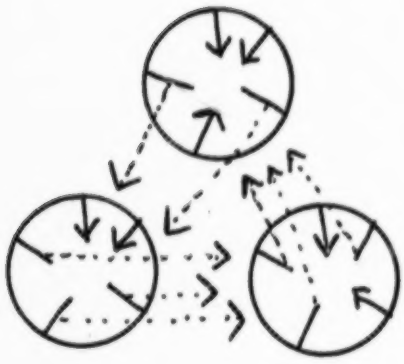
APPENDIX 2

A.



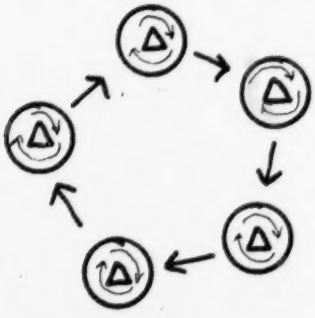
Instructor collating group responses using spokesmen

B.



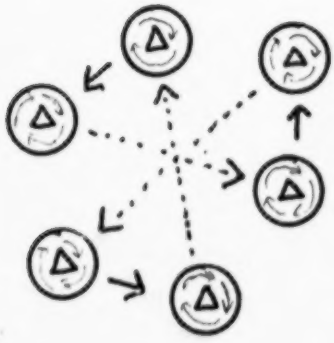
Partial personnel exchange

C.



Clusters of 3 - intra- and interchange of papers for reading or grading

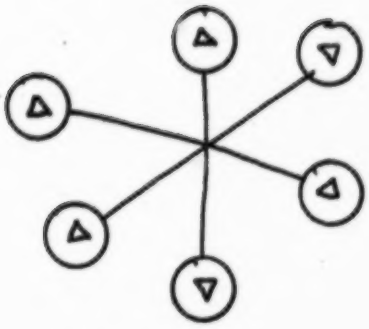
D.



Clusters of 3 intra- and interchange of papers for reading or grading

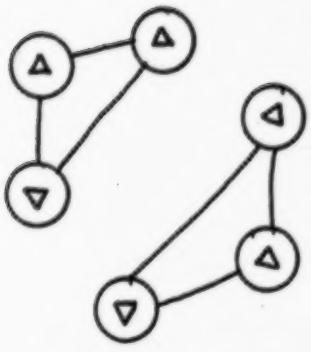
APPENDIX 3

A.



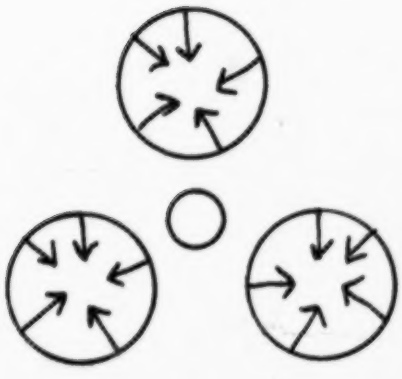
Clusters of 3 interchange in groups of 2

B.



Clusters of 3 interchange in groups of 3

C.



Instructor three-way audit

D.

Post-cluster discussion with instructor